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UNIVERSITY OF CALIFORNIA,
BERKELEY, CALIFORNIA

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
WASHINGTON, D. C.

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BERKELEY 4, CALIFORNIA

PROJECT PLANS FOR INSECT CONTROL

Sierra National Forest 1951

6/18/51

General conditions and purpose

Epidemic bark-beetle infestations on the Sierra National Forest, in evidence late in 1949, are still a serious threat to high timber values. While much less severe than the general outbreaks of the early thirties the drought pattern is similar, and favors continuing aggression. Suppressive measures undertaken in the spring 1950, were only partially effective in reducing losses, owing to the lateness of treating schedules because funds were not available in time for good planning and coverage. Work to be continued in 1951 will be financed in time for adequate planning and coverage of areas in need of suppressive measures.

Areas needing suppressive measures

Five areas have been designated as most critically in need of immediate control measures. There are (1) Chiquito Basin, 10,000 acres; (2) Rock Creek, Shake Flat, 11,000 acres; (3) Bass Lake, 10,000 acres; (4) Blue Canyon, 7,500 acres; (5) Big Creek, 10,000 acres. The last-named project is contingent on the cooperation of private ownership jointly with the U. S. Forest Service. Decisions in favor of these areas are based primarily on: (1) the aggressive character of infestations and (2) entomological soundness considering natural barriers of topography, timber type, and commercial or recreational values to be protected.

Suppression of aggressive outbreaks in other areas within or adjacent to government-owned timber will not be undertaken unless participated in fully by the mixed ownerships involved and in units that are entomologically sound.

Scheduling of work

1. Bass Lake. This project may be continued during January, February, and March 1951, or until such time as all areas within the bounds of this unit are covered systematically by spotting and control. Efficiency of winter work is dependent on extended breaks of clear weather, when several successive days or weeks of effort can be put in without interruption. This project should end on or before March 31.

2. Chiquito, Rock Creek, Blue Canyon. Work should start in these areas as early as possible in late February or early March, or as soon as continuous uninterrupted effort can be put in. The work here should terminate not later than April 15.

3. Big Creek. With the cooperation completed as required by the mixed ownership pattern of this unit, this project should be started early in March and completed not later than May 1.

Responsibility

The responsibility of project organization and administration is charged directly to the forest supervisor. Technical supervision with respect to project recommendations, spotting, control methods, training of spotting and control personnel, and the scheduling of project termination is the responsibility of the Bureau of Entomology and Plant Quarantine.

Size of control crews

A control crew consists of 3 men, two fallers and a burner. Variation in number of crews required for the specific projects will depend on salvage possibility, distribution of infestation, character of terrain, etc. The estimated number of crews needed on the projects are listed as follows:

Project	Man Days	Crews
Bass Lake	240	4
Chiquito	240	4
Rock Creek-Shake Flat	300	4
Shaver Lake[1]	240	4
Blue Canyon	240	4

Spotting Crews

Two spotters should be assigned to each project. They should be well grounded in the technical phases of spotting, the coverage of areas, mapping details, and recording of information.

1/ Cooperative state and private.

Spotting requirements

Each designated control unit will be covered systematically for the purpose of locating and mapping infested trees. This will be done by contouring drainage basins and/or compass and pacing, depending on the topographic character of the terrain to be covered. With either method, the width of strips shall be limited to 5 chains to insure full ground coverage.

Each spotter will be charged with the responsibility of marking, numbering, recording, and mapping only trees which contain bark-beetle broods. Care will be exercised not to mark abandoned or green, uninfested trees. Spotter training is, therefore, very important and such training as is necessary will be provided by the Bureau or by experienced persons designated by the Bureau.

Infested ponderosa pine trees are recognized by uniformly fading or faded crowns, and pitch tubes along the main trunk. Unfaded crowns with reddish dry borings along the trunk are also certain indications of infestation.

Because of seasonal variations in temperature conditions prior to the dormancy of broods, constant checking of faded trees is necessary to determine the presence of larvae and pupae. D. brevicomis broods are found within the corky bark, and revealed only by chipping it away. Numerous exit holes on the outer surface of the bark indicate certain abandonment and such trees are not marked.

Trees of uncertain status such as those having a green base and fading crown should be marked for treatment. If after felling they are found to be abandoned or uninfested, no time should be spent on treatment.

Infested trees will be blazed and numbered serially. Each spotter is given a separate number series along with the portion of a given unit in which he is assigned to spot. After numbering, a treating tag (Form 8-5223) is filled out and fastened to the tree. Then a spotting record (Form NO-38) is filled out and filed with the control foreman. The position of the infested tree is then located on a map (scale: 8" = 1 mile) as accurately as possible. This information completed, the spotter continues his spotting survey until all areas in his charge are covered.

Control methods

The fell-peel-burn method will be universally employed on all projects except where other methods will cheapen cost and remain as effective. Salvage logging should be undertaken wherever possible, with logs hauled away, milled, and the slabs containing infesting broods burned. Toxic oils with formulations of orthodichlorobenzene 2/ (proportions 6:1) should be applied to tight-bark trees where there may be considerable savings in labor.

2/ Defense priorities may preclude use of ortho; the best substitute formulation is the 5% DDT and diesel oil combination.

With the fell-peel-burn control method, the felled tree is limbed and the top half-sector peeled. The peeled bark and the limbs are bedded alongside the log, then set on fire. The heat thus generated under the log is sufficient to destroy the broods in the unpeeled lower sector.

When used, toxic oils will be applied as a coarse spray sufficient to wet all bark surfaces evenly to the point of run-off. The amount of oil required to do this is about .025 gallons to one square foot of bark surface or 1 gallon to 40 square feet. An average-sized tree will require 6 to 8 gallons of oil.

Trees treated entirely with toxic oils should be bucked so that the logs can be rolled and oil applied to the upper surfaces. In this way all bark surfaces are uniformly treated and covered, with greater assurance of good control results. A combination using toxic oils on upper surfaces and burning the undersides of infested logs may be desirable in some cases.

Duties of control crews

Each 3-man crew is composed of two fallers and a burner. On reaching a marked infested tree the head faller is required to remove the record attached to the tree, and fill out the reverse side after treatment is completed. Duties of the fallers are to fell, limb, peel, and construct fire line. The burner is responsible for effective burning of broods and keeping the fire within bounds. He must prepare limbs and bark, set fires along the log, and patrol the burning log until safe to leave.

Contract treating

Contract control work has several desirable features, especially with respect to efficiency and cost of work accomplished. This is to be encouraged.

With contracting and use of chain saws or other modern equipment, the division of labor and amount of manpower required will deviate from that described earlier. This is the responsibility of the contractor who agrees to get infested trees down and treat them by prescribed methods.

Technical supervision by Forest Insect Laboratory

All spotting and control work by whatever system or method, will be supervised by a technician trained for this purpose. It will be his responsibility to see that spotting includes only infested trees within each entomological unit, that all areas within a unit are covered fully and systematically, and that control procedure is adequate and fully effective in destroying broods. He will keep fully informed of infestation conditions and suggest changes in technique if necessary to improve efficiency. He is to be consulted for advice on any technical phases of the job as they may show up in any given unit.

SUBMITTED BY:

APPROVED BY:

George R. Struble
Entomologist

F. P. Keen
Entomologist in Charge
January 15, 1951

Project area No. _____ Unit _____ Tree No. _____

Killed by _____

Year _____ { Summer brood _____ / Winter brood _____

Location _____

Forty _____ Sec. _____ T. _____ R. _____

Owner _____

	D. BREV.	D. MONT.	IPS.	
Attack				
Parent adult				
Eggs				
Larvæ 0 to .5				
Larvæ .5 to 1				
Pupæ				
New adults				
Emerging				
Abandoned				
Infested length				

FOLIAGE

Green
Fading
Sorrel
Red
Black

Yellow pine
Sugar pine
_____
D. B. H.
No. 16-ft. logs
B. F.

Remarks:

8—5223

Date _____ Camp No. _____

Spotter _____

CONTROL DATA

Date of felling _____ Date of treating _____

Infested length _____ Dia. at base _____ Dia. at top _____

Method of Treatment:

TREE	BRUSH	LOG	BARK	INSECTS
Left stand	Left on	Laid flat	Left on	Burned
Felled	Trimmed	Off ground	Peeled ¼	Suncured
	Piled	Rolled	" ½	
	Spread		" all	

Size of Crew _____ Treating time _____ man, mins.

Remarks:

Crew Foreman _____

GOVERNMENT PRINTING OFFICE 8—5223

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND QUARANTINE

SPOTTING RECORD

Project area_____ Unit_____ Camp No._____

Date_____ Spotter_____ T._____ R._____ Sec._____

Tree No.	Killed by	D B H	Logs	Volume				Remarks
Totals,								

Form EQ-38

AGRICULTURE-ALAMEDA, CALIF.

TREATING PLAT

*Project Area*_____ *Unit*_____ *Camp No.*_____

*Date*_____ *Compass man*_____ *T.*_____ *R.*_____ *Sec.*_____

*Remarks:*_____